

WHAT IS CLAIMED IS:

1. A vise for holding a plurality of work pieces onto a support surface, the vise comprising:
  - a) a base with a long axis, and a bottom surface for contact with the support surface;
  - b) securing means for bolting the base to the support surface;
  - c) a plurality of stationary jaws with means for removably affixing to the base at selectable positions along the long axis with jaw faces transverse to the long axis;
  - d) a plurality of movable jaw assemblies slidably mounted in the base for translatory motion along the long axis with jaw faces transverse to the long axis;
  - e) a first adjustment means in each jaw assembly for coarse adjustment of the position of the assembly along the long axis for snugly engaging the work piece between the stationary and movable jaw faces; and
  - f) a pressure mechanism for forcing all of the movable jaw assemblies in a common direction along the long axis toward their corresponding stationary jaws for thereby applying substantially uniform high pressure to all of the movable jaws simultaneously.
2. A vise for holding a plurality of work pieces onto a support surface, the vise comprising:
  - a) a base with a long axis, and a planar bottom surface for contact with the support surface;
  - b) a plurality of bolt receiving apertures orthogonal to, and passing through, the bottom surface for bolting the base to the support surface;
  - c) a plurality of stationary jaws with means for removably affixing to the base at selectable positions along the long axis with jaw faces transverse to the long axis;
  - d) a plurality of movable jaw assemblies slidably mounted in a channel of the base for translatory motion along the long axis with jaw faces transverse to the long axis;
  - e) a cam plate mounted in a channel in the base for slidable movement along the long axis;
  - f) a plurality of projections extending along the long axis upstanding from the cam plate;
  - g) a projection engaging member connected to the jaw assembly at a first end and provided with means at a second end for engaging selected ones of the projections to determine a gross position of the jaw assembly;
  - h) a coarse adjustment means in each assembly for coarse adjustment of the position of the assembly along the long axis for snugly engaging the work piece between stationary and movable jaw faces; and

- i) a cam plate movement mechanism for moving the cam plate and all of the movable jaw assemblies engaged thereby in a common direction along the long axis toward their corresponding stationary jaws thereby flexing a spring member interposed between each movable jaw face and the cam plate and applying substantially uniform high pressure to all of the movable jaws simultaneously.
- 3. The vise according to claim 2 in which the projections extend from the cam plate non-orthogonally, such that the movable jaw assembly is subjected to a force vector pressing the assembly against the channel as well as toward the stationary jaw when the cam plate is advanced by the cam plate movement mechanism.
- 4. The vise according to claim 2 in which the cam plate movement mechanism comprises a cam pivotally mounted on the base that is rotatable by a lever.
- 5. The vise according to claim 2 further comprising a stop element mounted on the stationary jaw for adjustably determining a lateral position of the work piece.
- 6. The vise according to claim 2 in which the cam plate movement mechanism provides three positions of the movable jaw faces, a first position in which the movable jaw faces are spaced away from their corresponding stationary jaw faces, a second position in which the movable jaw faces are closer to the stationary jaw faces so as to hold the work piece snugly with the coarse adjustment means, and a third position in which the movable jaw faces are further advanced toward the stationary faces while the spring member is flexed to apply said uniform high pressure.
- 7. The vise according to claim 2 in which the spring member is interposed between a body of the jaw assembly and a movable jaw face.
- 8. The vise according to claim 7 in which the movable jaw face is in two parts to enable two work pieces to be held.
- 9. The vise according to claim 2 in which the spring member is interposed between a body of the jaw assembly and the cam plate.
- 10. The vise according to claim 2 in which the coarse adjustment means includes a screw mechanism having threads that are protected from exposure to cutting debris.
- 11. A vise for holding a plurality of work pieces onto a support surface, the vise comprising:
  - a) a base with a long axis, and a bottom surface for contact with the support surface;

- b) securing means for bolting the base to the support surface;
- c) at least three stationary jaws with means for removably affixing to the base at selectable positions along the long axis with jaw faces transverse to the long axis;
- d) at least three movable jaw assemblies slidably mounted in the base for translatory motion along the long axis with jaw faces transverse to the long axis;
- e) a first adjustment means in each jaw assembly for coarse adjustment of the position of the assembly along the long axis for snugly engaging the work piece between the stationary and movable jaw faces; and
- f) means for forcing all of the movable jaw assemblies in a common direction along the long axis toward their corresponding stationary jaws for thereby applying substantially uniform high pressure to all of the movable jaws simultaneously.